

### REMARKS

Reconsideration of this application courteously is solicited. By this paper, claim 2 has been canceled. Claims 1, 3, and 6 have been amended.

Initially, the August 22, 2005 Office Action made an objection to the title as not sufficiently descriptive. A new title was required. By this paper, the title is amended to more specifically correspond to the subject matter of the claims. In view of this change, withdrawal of the objection to the title courteously is solicited.

As to the claims, first, claims 1, 5, and 6 have been rejected under 35 U.S.C. § 103(a) as purportedly unpatentable over U. S. Patent 6,188,059 to Nishiyama et al. in view of U. S. Patent 6,333,804 to Nishiyama et al. This rejection has been traversed.

Claim 1 has been amended to incorporate the subject matter of original claim 2, and also additional features of the invention as fully disclosed in the original specification. As such, Applicant courteously urges that the rejection over Nishiyama et al. '059 and Nishiyama et al. '804 is overcome. Withdrawal of this rejection courteously is solicited.

Claims 2 and 3 were rejected, also under 35 U.S.C. § 103(a), as purportedly unpatentable over Nishiyama et al. '059 and Nishiyama et al. '804, further in view of U. S. Patent 5,075,627 to Bodig et al. This rejection is traversed with respect to sole independent claim 1.

According to Applicant, neither the Nishiyama et al. '059 nor the '804 patent teaches or suggests the details of Applicant's recited voltage source as originally appeared in claim 2, and now appearing in claim 1. In purporting that these features are obvious, the Examiner has turned to the Bodig et al. patent. This asserted Nishiyama et al. '059 and '804 with Bodig et al. combination fails to render the pending claims obvious because it untenably is based upon improper hindsight.

Applicant understands the Office Action as regarding Bodig et al.'s resistors R7 and R8 as having the same function as those in Applicant's original claims 2 and 3. Further, Applicant notes Fig. 1 in Bodig et al. as showing diodes D4 and D5 connected to resistors R7 and R8.

According to Applicant, however, Bodig et al.'s diodes D4 and D5 protect the IC2. For purposes of analysis, Applicant suggests a case where resistors R7 and R8 have the same value but the midpoint potential between resistors R7 and R8 becomes 2.5V. When an input UP1 or UB exceeds the value 2.5V plus 0.7V or about 3.2V, Bodig et al.'s diodes D4 and D5 turn on and clamp the input of IC2 to be about 3.2V. Because Bodig et al.'s circuit is for an ignition coil, a large noise pulse may be generated. However, because of the presence of diodes D4 and D5 in Bodig et al.'s input protecting circuit, input to the IC2 adequately is protected against such large noise pulses. Thus, Applicant emphasizes that diodes D4 and D5 in Bodig et al. are for protection of IC2.

On the other hand, in Applicant's claimed arrangement, the recited diode serves as a type of switching circuit. Reference is made to diode 7Q in the voltage source circuit 7 of Applicant's exemplary preferred embodiment. In that embodiment, node T3 of the second current-mirror circuit 2R is divided into two paths. One is fed to the voltage source 7, while the other is brought to the outside of the receiver so that it is connectable to an ammeter.

Applicant recognizes that in circuits of his claimed type, it is a nuisance to monitor the current flowing in a current path, by, for instance, cutting the current path and connecting an ammeter with the cut path. In such a scenario, the cut portion must be reconnected after removal of the ammeter to recover circuit function. Rather than directly detecting current flow in the current path, Applicant has developed a current to voltage conversion. Resistor 8R1 shown in Applicant's Fig. 2 is connected to the second current-mirror circuit 2R for converting current into voltage, and for monitoring the voltage of node T2 with signal detector 6. In this way, current flowing in second current-mirror circuit 2R indirectly may be measured.

However, Applicant also advises that occasionally, it is required to make a current detection directly, without conversion into a voltage signal. This is because the avalanche photo diode 1 is a current generating device. In this manner of detection, an ammeter provided outside of the receiver is connected to the terminal IMT, and the other terminal of the ammeter is connected to the outside voltage source. To avoid discrepancy between the internal voltage source 7 and that of an external voltage source, internal source 7 is connected to node T3 via the diode 7Q, with the anode of diode 7Q being set to a bias determined by two resistors. By setting the current flow from the power supply Vcc to ground via transistors 7R1 and 7R2 to be large enough compared to that flowing in the second current-mirror circuit 2R, the midpoint potential between the resistors can be held substantially constant. Further, where an outside voltage source connected to the ammeter sets the voltage higher than this midpoint potential, less 0.7V which is the bias voltage of diode 7Q, the internal voltage source can be masked, because the cathode of the diode 7Q becomes equal to or smaller than the potential of terminal IMT. This turns off the diode 7Q. When the ammeter is removed from the terminal IMT, the voltage of the midpoint potential less 0.7V is supplied to node T3.

Applicant emphasizes that diode 7Q in the claimed arrangement and Bodig et al.'s diodes D4 and D5 have very different functions and objectives in their respective circuits. Applicant courteously submits that those of ordinary skill in the art will not have found the requisite suggestion or motivation from either of the Nishiyama et al. '059 and '804 patents to have made modifications to have incorporated Bodig et al.'s circuit arrangements therein. Rather, such motivation is found only in Applicant's own disclosure and not in Bodig et al. or either Nishiyama. For at least these reasons, Applicant courteously submits that independent claim 1 remains patentable over the asserted art of record. Hence, the rejection based upon this asserted art respectfully is overcome. Withdrawal of this rejection courteously is solicited.

Lastly, claim 4 has been rejected as purportedly obvious over Nishiyama et al. '059 in view of Nishiyama et al. '804, further in view of U. S. Patent 6,034,518 to Yuasa. This rejection likewise is traversed.

The Yuasa patent does not remedy the deficiencies of the Nishiyama et al. patents, and the Bodig et al. patent as discussed above. Specifically, Yuasa would not have supplied the requisite suggestion and/or motivation for modification for those of ordinary skill in the art. As such, this rejection likewise is overcome.

In view of the foregoing amendments and remarks, it courteously is solicited that all of the remaining claims are allowable and that this application is in condition for allowance. Favorable action in this regard earnestly is solicited.

If any other fees under 37 C.F.R. §§1.16 or 1.17 are due in connection with this filing, please charge the fees to Deposit Account No. 02-4300; Order No. 33035 M 136.

Respectfully submitted,  
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